NAME:…….. **STREAM**……

SENIOR FOUR

553/1

BIOLOGY

PAPER 1

EXAM 5

FOR CONSULTATION CALL 0776802709

2 hours.

INSTRUCTIONS TO CANDIDATES:

- Answer **all** questions in sections **A** and **B** PLUS only one question in section **C**
- Answer section **A** by encircling the most correct alternative, answers to Section **B** in the space provided and answers for section C in the answer sheets provided.

For Examiner's Use Only		
Section	**Marks**	**Examiner's Signature**
A		
B		
C		
TOTAL		

SECTION A

1. In the classification of organisms which of the following is the correct hierarchy of the taxonomic groups?

A. family, genus, kingdom, class, order, phylum

B. family, genus , order, phylum, kingdom, class

C genus, family, order, class, phylum, kingdom

D kingdom, genus, phylum, order, family, class

2. Which one of the following fruits has parietal placentation?

A. Pawpaw. B. Red pepper. C. Lemon D. pineapple

3. Which of the following tissues transports manufactured food?

A. cortex B. Cambium C. xylem **D**. phloem

4. Which one of the following has scale leaves?

A. Cassava B. Irish potato C. carrot **D.** Onion

5. In flowering plants, onion leaves are modified for

A. reproduction B. protection **C.** storage D. climbing

6. Which of the following is a <u>set</u> of characteristics common to all Arthropods?

A. Segmented body, 3pairs of legs, 3 body divisions.

B. Segmented body, jointed legs, jointed antennae.

C Segmented body, jointed appendages, exoskeleton.

D Segmented body, jointed legs, mandibular mouth parts.

7. Which of the following suits an antelope?

A. Class Amphibia **B.** Class Mammalia C. Class Reptilia D. Class Aves.

8. Which one of the following has fur?

A. Fish B. Amphibian. C. Reptile. **D.** Mammals.

9. A collection of flowers on the same axis is

A. A simple flower

B. An inflorescence

C. Syncarpous pistil

D. Apocarpous pistil

10. Which of the following flowering plants has tendrils?

A. Pumpkin B. Cassava C. Maize D. Cassia

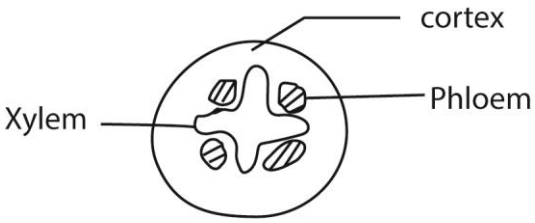
11. To which of the following does the star fish belong?

A. Chordata. B. Nematoda. C. Echinodermata. **D.** Coelenterata

12. Which of the following fruits is an example of a drupe?

A. Tridax B. tomato C. passion fruit **D.** avocado

13. Which part of the flowering plant is represented in the figure below?



A. Dicot root B. Dicot stem C. monocot stem D. monocot root

14. Which of the following is not a plant organ?

A. xylem vessel B. tap root C. flower D. foliage leaf

15. The essential parts of the flower are;

A. calyx and sepals **B.** gynoecium and androecium

C. ovary and stigma D. corolla and filament

16. Which of the following does not require a circulatory system?

A. frog B. earth worm **C.** Amoeba D. snail

17. Which of the following features differentiates a housefly from spider?

A. segmented body B. jointed legs

C. number of body parts D. possession of exoskeleton

18. Which of the following plant organs can be used in vegetative reproduction?

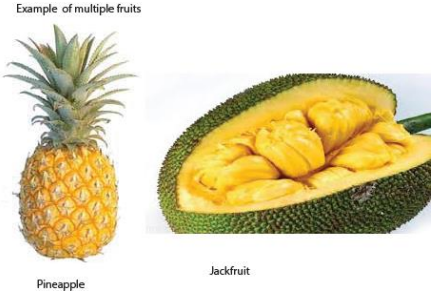
A. stem tuber of Irish potato B. root tuber of cassava

C. tap root of carrot D. leaves of onion

19. Which one of the following types of fruits is a pineapple?

A. c **B.** multiple fruit C. indehiscent fruit D. Berry

Other examples of multiple fruits **fig, mulberry, osage-orange, and jackfruit**.



A type of fruit that develops from a single flower of many simple pistils. Examples are **blackberries, strawberries and raspberries** where each fleshy lobe is actually an individual fruit joined at their bases.

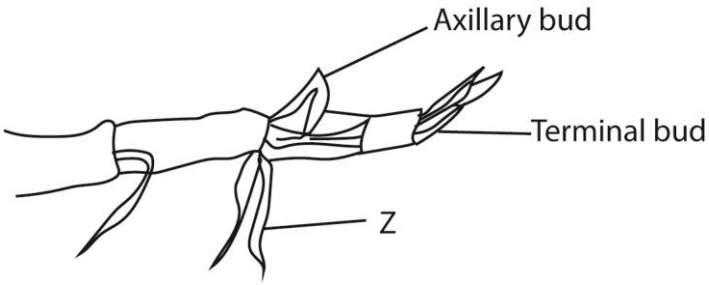
Example of multiple fruits

20. Which of the following plant organs has a scattered arrangement of vascular bundles?

A. root of monocotyledonous plant **B.** stem of monocotyledonous plant

C. stem of dicotyledonous plants D. root of dicotyledonous

21. The type of roots labeled Z in the figure below are called



A. Prop roots B. lateral roots. **C.** adventitious roots D. clasping roots

22. Which of the following are characteristics of insect pollinated flowers?

A. feathery stigma, light pollen grains.

B. sticky stigma, heavy pollen grains.

C. Light pollen grain, dull coloured petals.

D. long filaments, much pollen grains

23. The part of the microscope used to make the image clear is the

A. objective lens. B. eye piece. C. coarse adjustment. **D.** fine adjustment

24. The main function of buttress roots is to

A. provide additional support.

B. store food for the plant

C. enable food plant to clasp firmly on to the others.

D. store water for the plant

25. Which one of the following occurs in a flower after fertilization?

A. petals, stigma and style remain.

B. ovary, petals and sepals dry and fall off.

C. ovary develops into seed coat.

D. ovules develop into seeds.

26. Which of the following are not social insects?

A. ants **B.** butter flies C. termites D. Bees

27. Which one of the following organisms has the largest surface area to volume ratio?

A. bat B. frog **C.** amoeba D. cockroach

28. Which one of the structures of the dicotyledonous seed is correctly matched with it's function?

Structure	**function**
A. Micropyle	protection
B. Radicle	develops into shoot
C. Testa	Allows in air
D. Cotyledons	**Store food**

29. Which one of the following cell structure is possessed by both animal and plant cells?

A. chloroplasts B. cell wall **C.** cell membrane D. flagellum

30. Which of the following sets of characteristics of leaves enables them to absorb maximum sunlight?

A. broad lamina, tightly packed palisade cells

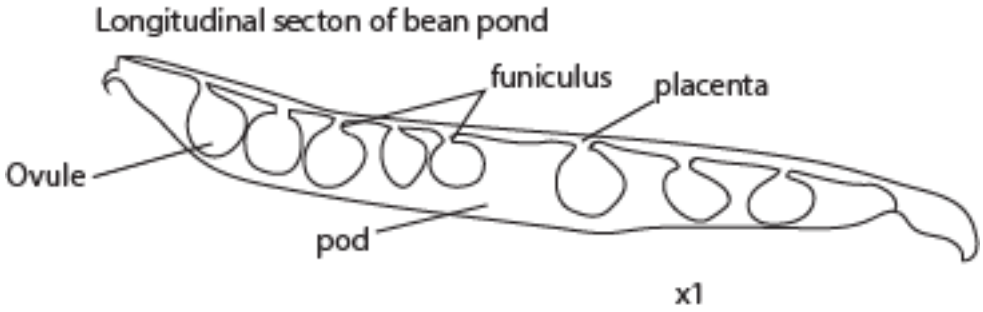
B. being thin and has numerous stomata

C. Has numerous stomata and waxy cuticle

D. Being thin, large intracellular spaces.

SECTION B (answer in the spaces provided)

31.a) Draw and Label the diagram of the longitudinal section of a bean fruit.(05marks)



b) Give five characteristics of wind pollinated flowers. (05marks)

a. Large production of pollen grains.
b. Flowers are not attractive and scent emitting.
c. Feathery and sticky stigma.
d. The pollen grains are light and non-sticky so that they can be transported in wind currents.
e. Flowers do not possess nectar.
f. Anthers is well exposed e.g. maize flower.

c) Give five characteristics of insect pollinated flowers. (05marks)

(i) brightly colored petals
(ii) scented
(iii) Have nectar
(iv) Flowers have nectar
(v) Flower have sticky pollen grains

32a) You are given an organism with two names; <u>*Periplaneta americana*</u> Which of the two names is the:

i) Genus name?.Periplaneta
ii) Species name?americana

(02marks)

b) Write down the scientific name of man. (01mark)

Homo sapiens

c) Mention 7 Phyla found in the Kingdom Animalia ($03_{1/2}$marks)

i) Phylum chordata
ii) Phylum arthropoda

iii) Phylum ave

iv) Phylum protozoa

v) Phylum Platyheliminthes

vi) Phylum Nematoda

vii) Phylum Annelida:

d) List down the seven taxa or groups used in classification of living organisms from the largest to the smallest group. ($03_{1/2}$marks)

Taxa
Kingdom
Phylum
Class
Order
Family
Genus
species

SECTION C (Attempt any 1 question from this section)

33 a) Define the term autotrophic nutrition? (01marks)

This is the synthesis of organic compounds from inorganic sources.

b) Briefly describe the types of autotrophic nutrition and give examples of organisms in each case. (05marks)

Chemosynthesis: is the synthesis of organic compounds from carbon dioxide and water using energy from oxidation of inorganic materials such as hydrogen sulphide, ammonia and iron II e.g. bacteria.
Photosynthesis is the synthesis of organic compounds from carbon dioxide and water using energy from light e.g. greenplants

c) Giving examples in each case define the following terms. (09marks)

i) Herbivores.

Animals that feed on plants e.g. cow

ii) Carnivores.

Animals that feed on other animals e.g. lion, leopard

iii) Saprophytes.

34(a) Briefly, describe the different types of carbohydrates and each case give examples. (10mks)

- Monosaccharides or simple sugars e.g. glucose, galactose and fructose
- **Disaccharides**

  They are made of two simple sugars as shown in table below

Disaccharides	Composition	Source
Maltose	glucose + glucose	malt
Lactose	Glucose + galactose	milk
Sucrose	Glucose + fructose	Sugar cane Sugar beets
Cellubiose	Glucose + glucose	wood

- **Polysaccharide** $(CH_2O)n$

These are made of very many mono saccharides per unit molecule e.g. starch and cellulose

b) Give any 5 functions of proteins in the human body. (05marks)

Uses of proteins

(i) Make up structures, e.g., collagen make up connective tissues.
(ii) Make up enzymes such as catalyze and amylase.
(iii) Are constituent of hormone such as insulin
(iv) Are constituents of antibodies that protect the body from foreign particles.
(v) Make up muscles such as myosin and actin
(vi) They are storage food e.g. egg white
(vii) Constitute toxins such as snake venom for protection.

END *** **Merry x-mass and a happy new year!**